

**ARIZONA GAME AND FISH DEPARTMENT  
HABITAT PARTNERSHIP PROGRAM  
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL**

<b>PROJECT INFORMATION</b>	
<b>Project Title:</b> Unit 4A A/S National Forest Pinyon Juniper Removal Project	<b>Project No.</b> 07-108
<b>Region/GMU:</b> Region I Unit 4A	<b>HPC:</b> Winslow
<b>Project Type:</b> Pinyon/Juniper Removal to restore grasslands	
<b>Project Description:</b> The project will restore about 1800 acres Plains Great Basin Grassland that has been invaded by Pinyon/Juniper (P/J) woodlands. This project will focus on restoring grassland along the northern boundary of the Forest. The goal is to create continuous mosaic grassland that will tied to grasslands both on the National Forest and on the private and State lands to the north. The two private ranches to the north are the Ohaco and Hopi 3 Canyon Ranches. Both of these Ranches are currently involved in Grassland Restoration efforts.	
<b>Wildlife Species to Benefit:</b> Elk , Pronghorn , Deer (estimates base on biomass not numbers)	
<b>Possible Funding Partners:</b>	
<b>Implementation Schedule:</b> <b>Beginning:</b> Winter 2007 <b>Completed:</b> Summer 2008	
<b>PROJECT FUNDING</b>	
<b>SBG Funds Requested:</b> \$ 75,000.00	
<b>Cost Share Funds:</b> \$ 75,000.00	
<b>Total Project Costs:</b> \$ 150,000.00	
<b>PARTICIPANT INFORMATION</b>	
<b>Applicants:</b> Ken Clay  <b>Telephone:</b> 928 367-4281	<b>Address:</b> AZGFD 2878 E. White Mtn. Blvd Pinetop, AZ 85935
<b>AGFD Contact and Phone No.</b> <b>(If applicant is not AGFD personnel)</b>	
<b>Coordinated with:</b> A/S National Forest - Black Mesa Ranger District	
<b>Applicant's signature:</b>	<b>Date:</b>

**SEND COMPLETED APPLICATIONS TO:**  
**Game Branch**  
**2221 W. Greenway Rd.**  
**Phoenix, AZ 85023**  
**mdisney@azgfd.gov**

### **NEED STATEMENT/PROBLEM ANALYSIS:**

Juniper encroachment is a major problem with grasslands and meadows in Northern Arizona. Plains and Great Basin Grassland make up a large percentage of Navajo and Apache Counties. Encroachment of junipers reduces the productivity of grasslands and can reduce the ability of water to percolate into the water table, increasing run off and sedimentation into local watersheds.

It is also well documented that some grassland and savanna habitats in much of Arizona have been degraded primarily by tree invasion. The Arizona Game & Fish Department has placed grasslands as a high priority for bird assemblages and pronghorn. Currently the Department is working to maintain grassland habitats and restore these habitats as opportunities arise by partnering with private landowners and other agencies.

Although the encroachment by junipers can be addressed through chaining or cutting, the junipers carcasses still present an obstacle for pronghorn by reducing sight distance and providing hiding cover for predators. Pronghorn are adapted to “sight and flight” behavior and select habitats that favor this behavior. Areas containing landscape features, such as thick vegetative cover, that hinder visibility or the ability of pronghorn to run at full speed, are typically avoided (AZGFD Tech. Report #13). The proposed method of treatment eliminates the need for a second treatment to reduce carcasses below the recommended 18” upper limit of slash height.

Pronghorn are isolated from moving in or out of the Unit 4A due to Chevelon Canyon on the east, and Clear Creek to the west. Since this pronghorn herd is isolated on this “island”, it is very important to address their habitat needs to ensure healthy populations. This proposed project is a continuation of many projects that will benefit numerous wildlife species tied to the Plains and Great Basin Grassland habitat type in Unit 4A. To date three different projects have been initiated on the Ohaco and Hopi Ranches that will restore over 10,000 acres of grassland on both private and State lands. Those projects along with this proposed project are designed to create continuous mosaic grassland across the landscape.

This proposed project would address P/J encroachment through several aspects: First, it will expand grassland habitat by removing juniper trees that are less than 16 inches drc. Second, it will address the most recent P/J encroachment on existing grasslands where grassland habitat conditions and values are being compromised. Third, it will address the need for better movement corridors between Forest Service lands and privately owned ranches to the north. Currently the Forest Service land is a small percentage of the pronghorn habitat in Unit 4A. However, there is great potential to expand suitable grassland habitat further south onto the Forest with landscape scale grassland restoration projects.

### **PROJECT OBJECTIVES:**

The results of this project will restore about 1800 acres of grassland near the center of Unit 4A. The project area is at the southern end of the Plains Great Basin grassland habitat type in Unit 4A. Since grasslands are considered a habitat of concern for the Arizona Game and Fish Department it is important to address P/J encroachment. The proposed project area is between 6200 and 6500 feet in elevation. At this altitude P/J invasion becomes prevalent, due to precipitation patterns. Grasslands within this precipitation band are more diverse and productive. The end result is higher quality habitat for grassland species.

The focus of this project is two fold. Restore grassland on the north end the National Forest in Unit 4A. Provide a continuous mosaic grassland habitat type from the National to the private and State lands to the north. The end result of this project is to improve the quality of 1800 acres of grasslands. The big picture objective for grasslands in Unit 4A is to connect in to restore and connect grasslands on the Ohaco Ranch, Hopi 3 Canyon Ranch, and the

A/S National Forest. The total number of acres NEPA cleared for P/J removal through on the A/S National Forest in the north part of Unit 4A is over 8300 acres. This project will help chisel away area in need of treatment.

This project is part of an overall landscape restoration project that is occurring on the National Forest along with the Ohaco and Hopi 3 Canyon Ranches. During the last 10 years the limiting factor for this part of Unit 4A was addressed in water distribution and availability. The most noted cooperative project that address this issue was the High Point Well Project. This project was done in cooperation with the Ohaco Ranch, the Department, Forest Service, and NRCS. To date there is over 40 miles of under-ground pipe installed on the Ohaco Ranch and Forest service lands. There is 26 drinker sites along this pipeline that provide wildlife over 45,000 acres of perennial water from this water system alone. The next part of the puzzle to improve the habitat in this part of Unit 4A is to address P/J encroachment. P/J encroachment has resulted in degraded grasslands and browse areas. This project will take measures to improve both the herbaceous and browse components found in the area.

### **PROJECT STRATEGIES:**

The project will restore about 1800 acres of Plains Great Basin Grassland that has been invaded by Pinyon/Juniper (P/J) woodlands. The treatment will be completed using a drum grinder attached to a rubber tract skid steer (attached photo and specifications). The drum grinder chips up the trunk of the tree leaving the branches that holds more soil moisture creating a microclimate that is conducive to the production of cool season grasses and forbs. Approximately 90% of all junipers that are located in deep soils, and classified as historic grassland will be removed. On sites that have a shallow soil depth and a greater potential for browse production, all junipers within 10 feet of a browse plants will be selectively removed to reduce competition. Stringers of trees associated with shallow soils will be left to provide thermal cover and travel corridors for mule deer and elk. The objective in historic grassland habitat is to remove a majority of recent juniper trees while retaining large old growth junipers with a diameter at root crown (drc) of 16 inches or greater. This treatment will leave approximately 1 tree per 5 acres upon project completion in the openings

### **PROJECT LOCATION:**

The project will occur on the north end of the A/S National Forest (Black Mesa RD) within Unit 4A. The project area is part of the Wallace Allotments. The specific areas include parts of sections 28, 29, 32, 33, 34 in T.15N R.15E, Section 3 and 4 in T.14N R.15E, and Section 2, 11, and 12 in T.15N R.13E.. The Forest Service has completed NEPA for this area and has about 8300 acres of land identified for treatment under this analysis. See map below for project focus areas.

### **LAND OWNERSHIP AT PROJECT SITE (Please state specifically if PRIVATE PROPERTY and provide landowner's name):**

National Forest

### **IF PRIVATE PROPERTY, IS THERE A STEWARDSHIP AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?**

### **HABITAT DESCRIPTION:**

Pinyon/Juniper habitat with large grassland openings. The area has a good browse component made up of cliff rose, winter fat, mahogany and morman tea.

### ITEMIZED USE OF FUNDS:

Fund	Amount	Cost	Results	
AZGFD SB	\$75,000	\$82/acre	915 acres restored	Funded
SBG Fund 2007	\$75,000	\$82/acre	915 acres restored	Requested
WCF Fund carry forward	\$68,000	\$82/acre	830 acres restore	Requested
Total	\$150,000	\$82/acre	1830 acres restored	
Total w/ WCF	\$218,000	\$82/acre	2660 acres	

\*The cost per acre is a combine cost to clear trees and to do the arc surveys.

\*WCF funds were request 8-22-07. At this time these funds are considered to be a bonus and will help restore about 830 additional acres within this same project area.

### LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:

- Arizona Game and Fish will provide the coordination for project.
- USDA Forest Service (Black Mesa Ranger District) provide the NEPA clearance and will conduct the Arc Surveys

### PROJECT MONITORING PLAN:

The first method proposed to measure project effectiveness, will be annual big game surveys. These surveys are used to document changes in the population, including recruitment and overall distribution. With about 14,000 total acres of P/J being treated within this portion Unit 4A, there is an expectation that wildlife species that utilize these habitats will expand into these new areas. With higher quality habitat, production and recruitment for ungulate species should be increased, resulting in a healthier overall population.

### PROJECT MAINTENANCE:

Tree will be cut and ground into mulch. Resprout on these species is minimal and will not need further treatment.

### PROJECT COMPLETION REPORT TO BE FILED BY:

Ken Clay  
AZGFD Region I

**TREE SHEARING (AGRA-AXE, PUSH) PROJECTS (see attached worksheet):**

**ARIZONA GAME AND FISH DEPARTMENT**  
**TREE SHEARING WORKSHEET**

PROJECT NAME: Ohaco Ranch Grassland Restoration Project

1) What is the estimated acreage of the project?

1,800 acres

2) How are the trees to be cleared? (agra axe, chain saw, push):

Drum Grinder attached to either a rubber trac or tire machine

3) What is the estimated number of trees per acre?

20 to 30

4) Describe trees to be cleared (species, estimated diameter, single stem, multi-stem):

pinyon pine / Utah juniper, under 16", single and multi-stemmed

5) Describe terrain (slope, soil type, rocks, etc.)

focus of project is in deep soils, mild slopes, some rocky area

6) Please list any special land management status for the project site (i.e. Wilderness, National Park, National Monument, etc). If private land, list landowner.

NA

7) Please provide the following information about access to the proposed site:

Type of access (mark one): ☒ 2x4 vehicles ☐ 4x4 only ☐ foot only\*\*

\*\*If foot access only: Distance in miles:      Approx. hiking time:

Does access to this site require crossing private or tribal lands? ☐ YES ☒ NO

Is the site relatively accessible for tree shearing equipment? ☒ YES ☐ NO

Please describe any restrictions to public access:

NA



Figure 1. This is a photo of the roller chopper mounted to a skid steer loader large enough to handle the weight of the equipment.



Figure 2. This photo shows the roller chopper as it starts to mechanically remove to juniper tree.





Figure 3. This photo shows the results of mechanical removal using the roller chopper. This tree was approximately 15 feet tall with a 15 foot multi-stemmed crown.

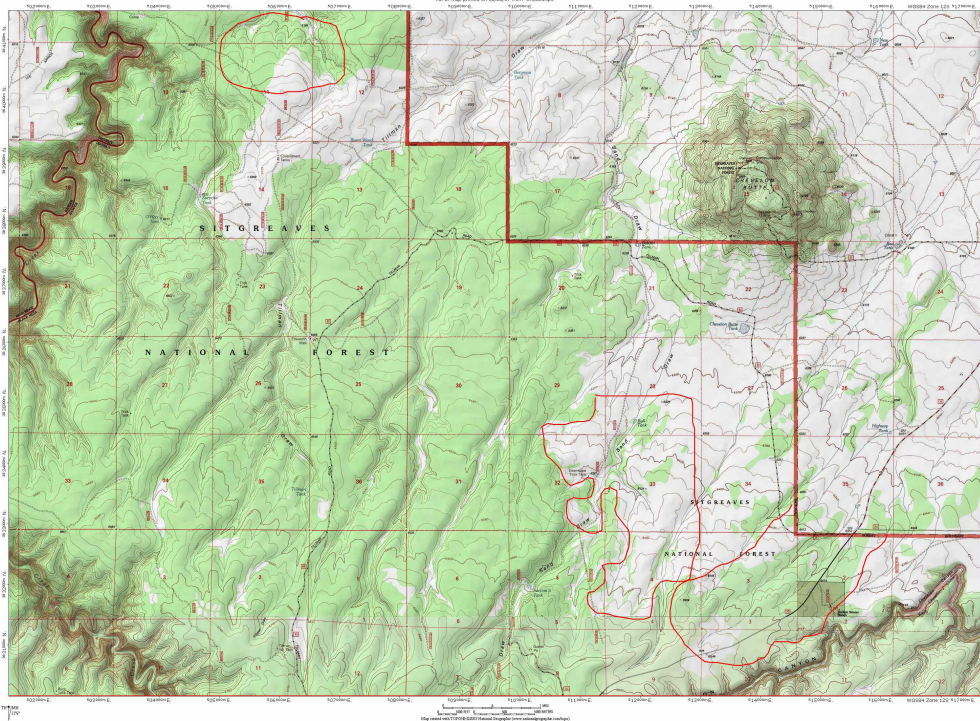


Figure 4. This is map that outlines in red the three general areas where this project will focus its effort. The bold red line is the Forest Boundary The mountain in the right center portion of the map is Chevelon Butte.